COMPCOOLER COOLING SYSTEMS KEEP YOU COOL AND COMFORTABLE!

TECHNICAL INFORMATION

For more information on how Compcooler personal cooling systems affect a person's body and performance, visit our shopping website here at www.compcooler.shop or scan the QR code below.

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COMPCOOLER

www.compcooler.shop

PERSONAL THERMAL REGULATION SYSTEMS

Stay Cool or Warm Regardless of
Your Ambient or Work Conditions

BACKGROUND TO PERSONAL THERMAL REGULATION DEVICES

Personal cooling systems were first developed more than 60 years ago to regulate the body temperature of astronauts and military pilots during their intense and heat-stressing duties. More commonly referred to as a liquid personal cooling system, it consisted of a tubing-lined garment connected via hoses to a cooling appliance that includes a cold sink, fluid pump and power unit.

In operation, a pump circulates cooled fluid in a continuous loop between the garment and a cold sink to regulate the User's body temperature, thus decreasing the incidence of thermal stress and heat stroke while increasing the comfort, safety, focus and endurance. The garment is connected to the cooling appliance with quick-disconnect fittings

COMPCOOLER PERSONAL THERMAL REGULATION DEVICES

PRODUCT INTRODUCTION

For the past 15 years, COMPCOOLER has expanded this technology to offer several kinds of liquid personal cooling systems that cater to a myriad of workplace and recreational applications. These systems are grouped into two main categories: Self-contained and Stationary. Cold sinks for both self-contained and stationary systems are offered in either ice-based or chiller-based options as described below.

System Selection Type

Personal Thermal Regulation System

ICE-based System
(cooling time based on melting ice and battery life)

- **Self-contained** *(Battery 5-7.4V)*
  - Waistpack 1.5L
  - Thighpack 1.5L
  - Univest 3.0L
  - Backpack 3.0/5.0L
- **Stationary** *(AC110-220V)*
  - ICE Chest 6.0L
  - ICE Chest 25L
- **Vehicle Mounted** *(Vehicle 12V DC)*
  - Handcarry 3.0L
  - ICE Chest 6.0L

Chiller-based Thermal System
(Cooling time based on battery life only)

- **Self-contained** *(Battery 12-16V)*
  - Compact chiller 12V 200W or 24V 250W
  - Compact heater 12V 120W or 24V 240W
  - Thermal Chiller 12/24V DC Cooling 200W Heating 120W
- **Stationary** *(AC110-220V)*
  - Indoor Chiller 110/220V 400W
  - Portable Chiller 24V DC/110-220VAC 400W
  - Indoor Thermal Chiller 110-220V AC Cooling 400W Heating 240W
- **Vehicle Mounted** *(DC 12-16V, 24-28V)*
  - Mini Chiller 12V 200W or 24V 250W
  - Racing Chiller 12V 250W
  - Vehicle Thermal Chiller 24-28V DC Cooling 350W Heating 240W

Liquid Cooling Garment Selection Logic
(Tube-lined garment)

- **Cooling Garment**
  - Mesh Cooling Vest
  - Stretchable Cooling Vest
  - High Collar Cooling Vest
  - Hooldie Cooling T-shirt
  - Full Body Cooling Garment
- **Cooling Pad**
  - Single
  - Full
  - Queen
  - King
- **Cooling Cushion**
  - Rider Seat Cooling
  - Driver Seat Cooling
  - Wheelchair Seat Cooling

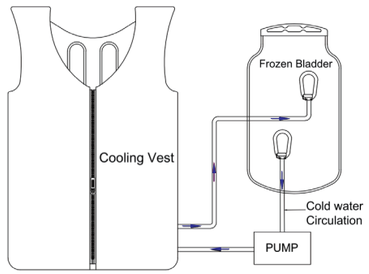
Note:
Self-contained System: cooling system is worn on the person
Stationary System: cooling system is separate from the person
Vehicle mounted System: cooling system is mounted on the vehicle.

ICE-BASED COOLING SYSTEM

SELF-CONTAINED ICE COOLING SYSTEM

Self-contained systems are used in applications where the user requires freedom of movement. As such, these systems are battery powered and carried on the person in the form of a backpack or waistpack. These self-contained systems use ice as the cold sink in a removeable frozen bladder.

The ice serves to cool the liquid that is pumped to the tubing-lined garment. Cooling time is predicated on the time it takes for the ice to melt, following by battery life. The time it takes for the ice to melt depends on the bladder size (1.5L, 3.0L and 5.0L), the ambient conditions and the workload of the user. Having additional batteries and frozen bladders on hand can prolong the cooling time.



Flow Diagram

■ Backpack

■ Univest

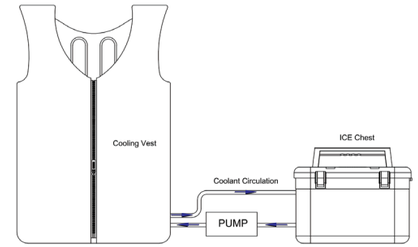
■ Waistpack

■ Thighpack

STATOINARY ICE CHEST COOLING SYSTEM

Stationary systems are designed for static applications where the operator performs tasks in a fixed location and use of both hands is essential. The cooling system is separated from the User's cooing garment and connected with longer coolant hoses. Stationary systems use ice as the cold sink in a removable frozen hard plastic container. The ice serves to cool the liquid that is pumped to the tubing-lined garment.

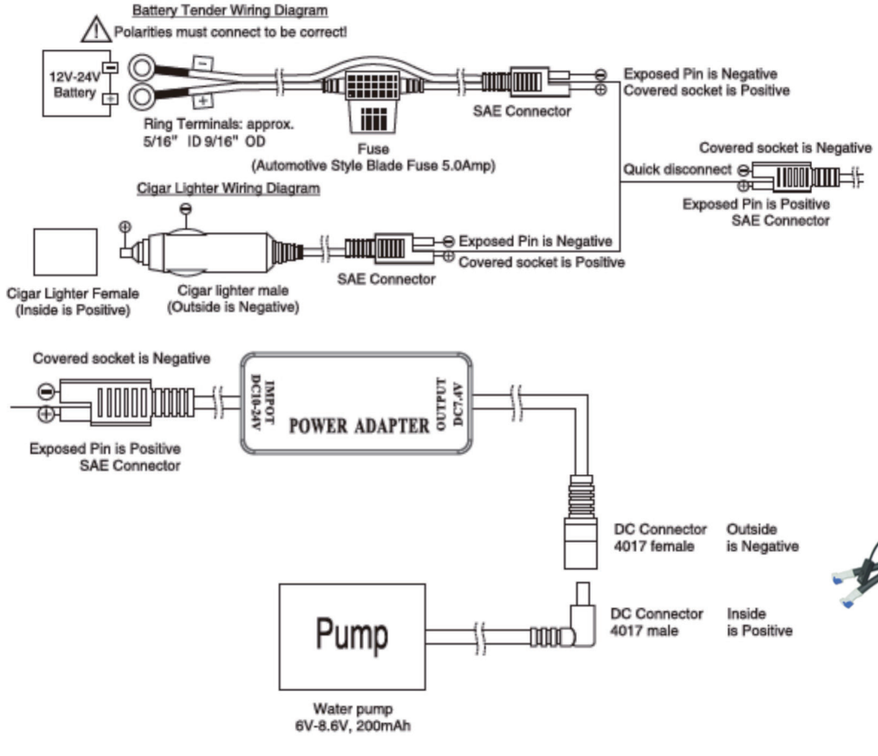
Stationary systems are typically powered by unlimited energy sources such as an AC outlet or a vehicle's DC battery, although rechargeable batteries can be used. Cooling time is predicated on the time it takes for the ice to melt.The time it takes for the ice to melt depends on the container size, the ambient conditions and the workload of the user. Having additional frozen bladders on hand can prolong the cooling time.



Flow Diagram

VEHICLE MOUNTED ICE CHEST COOLING SYSTEM

Vehicle mounted ICE chest cooling systems are designed for vehicle drivers or motorcycle riders whereby the ice chest is attached or mounted on the vehicle. The cooling system is separated from the User's cooling garment and connected with extension hoses. Vehicle mounted systems are typically powered by a vehicle's DC battery or rechargeable batteries.

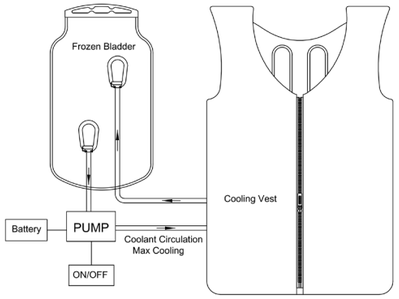


PUMP OPTIONS FOR ICE-BASED COOLING SYSTEM

COMPCOOLER offers several pump options for ice-based water circulation systems to meet the User's needs.

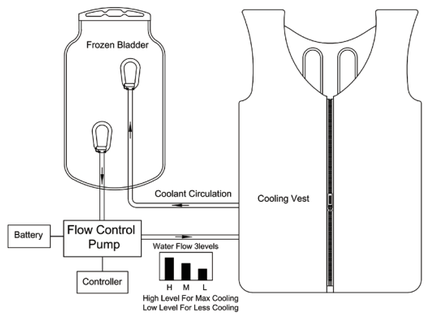
ON/OFF Pump

Simple on/off switch allows user to start or stop coolant circulation. User can expect maximum cooling performance when system is switched on.



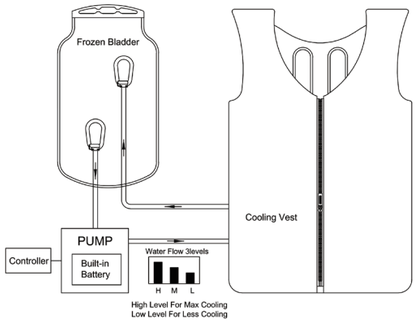
Flow Control Pump (FC)

Allows the user to select three flow rates for coolant circulation giving the user more control over the system performance depending on current workload and ambient temperatures.



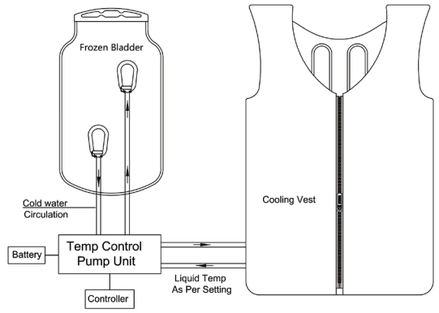
Intrinsically Safe Pump (ISFC)

Designed for cooling systems used in class i, ii, iii, division i hazardous areas. With built-in battery and sealed metal case, the ISFC pump combines the flow control feature in a package that limits the electrical and thermal energy available for ignition in adverse ambient conditions.



Temperature Control Pump (TC)

Provides accurate regulation of coolant temperature from 0° c - 30° c (32° f - 86° f). The TC pump eliminates temperature fluctuations and also reduces system noise and vibration for worry-free therapy. This is especially beneficial for patients who are disabled or sensitive to noise and vibration.

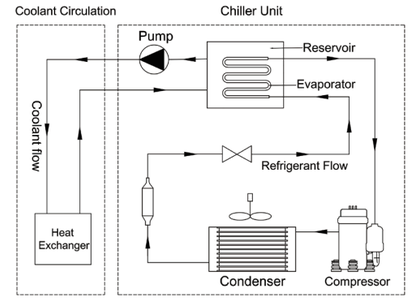


CHILLER-BASED THERMAL SYSTEM

MICRO REFRIGERATION CHILLER COOLING SYSTEM

COMPCOOLER's line of chiller systems are a type of mechanical refrigeration system that use a miniature rotary compressor, condenser, and an evaporator to cool the liquid circulating through the garment. COMPCOOLER's chillers are very small and light weight. Cooling time is predicated on the power source, typically in the form of a vehicle's DC battery, AC outlet or rechargeable battery.

These systems are designed to keep a single user or multi-users cool, comfortable and focused even on the hottest of days. Temperature control is -5° C - 30° C (23° F - 86° F) for cold water, and 31°C - 50°C (88°F - 122°F) for warm water with an accuracy +/-1 ° C (2 ° F). The systems are programmable and will automatically operate at the User's preferred set point using the supplied remote controller.



FLOW DIAGRAM OF CHILLER

SELF-CONTAINED CHILLER SYSTEM

Backpack Individual Cooling System (BICS) is a self-contained personal cooling device that uses a battery-powered mini chiller housed in a backpack to cool the liquid in a reservoir.

A pump in the chiller unit circulates cold liquid to a tubing-lined garment. The User's body heat is absorbed by the liquid and returned back to the chiller unit to be cooled again. BICS is powered by 12VDC rechargeable battery or vehicle power and delivers 100W of cooling capacity.

Backpack Individual Chiller Cooling System(BICS)

PORTABLE CHILLER SYSTEM

The COMPCOOLER Portable Chiller Systems (PCS) were designed for indoor and outdoor personal cooling applications. PCS uses a mini rotary compressor and a heater to cool or warm the liquid in a reservoir. A pump circulates the treated liquid to a tubing-lined garment and/or pad.

Portable chillers with built-in power supply are powered by an 110-220V AC outlet, or 24V DC battery. Indoor chiller systems operate quietly which is suitable for users seeking medical cooling or warming therapies.

Indoor Refrigeration Chiller Unit

Portable Outdoor Chiller Unit

VEHICLE-MOUNTED CHILLER SYSTEM

COMPCOOLER's line of vehicle-mounted chiller or thermal chiller refrigeration systems are specifically designed to keep vehicle drivers and aircraft pilots cool or warm. Ruggedly built to endure shock and vibration, these thermal chiller systems use a mini rotary compressor and a heater to cool or warm the liquid in a reservoir. The chiller systems include a detachable base which allows for easy installation and removal in the vehicle.

The hoses that tether the tubing-lined garment and/or pad to the chiller have quick-disconnect fittings with a breakaway feature that allows for safe egress from the vehicle in emergency situations. Vehicle-Mounted Chiller Units are powered by the vehicle's battery rated for 12-16V or 24-28V DC.

■ Racing Chiller Cooling Unit

■ Mini Solo Chiller Unit

■ Vehicle Mounted Thermal Chiller Unit

■ Microclimate Cooling Unit

SELF-CONTAINED HEATING SYSTEMS

Compcooler Personal Heating Systems (PHS) are also available in Self-contained and portable versions. These systems combine a liquid heating unit (LCU) with a tubing-lined garment and power source options including AC adapter, 12V DC rechargeable battery, or wire assembly designed to hook up to 12V DC vehicle power.

LCU' s for outdoor use, such as wheelchair or motorcycling, are housed in a hand carry pack that includes a heating element, water reservoir, circulation pump and battery pouch. With a heating capacity range of 100W to 150W users can set their desired temperature between 31°C - 50°C (88°F - 122° F) and circulate warm water to a comfortable tubing-lined garment, heating pad or blanket.

Compact Liquid Heating Unit

LIQUID COOLING GARMENT SELECTION LOGIC

LIQUID COOLING GARMENT OPTIONS

COMPCOOLER' s tubing-lined mesh vest is a highly engineered and breathable garment that weighs a mere 0.5KG (1.1 lbs.), dry weight. It consists of a soft mesh outer fabric and inner liner that is easy to don and comfortable to wear against the body. A zipper and adjustable tabs provide a snug fit for maximum thermal transfer. These vests are equipped with quick-disconnect fittings that are compatible with COMPCOOLER' s line of self-contained and stationary thermal regulation systems.

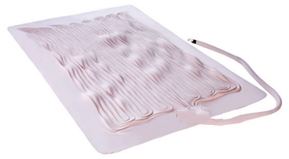
Mesh Cooling Vest

COMPCOOLER' s tubing-lined undergarments are made with stretchable and comfortable fabric to provide a snug fit for maximum thermal transfer.Undergarment options include a vest with neck cooling, long sleeve T-shirt with hoodie and full body cooling garment. Fire-resistant material is also available.

Stretchable Cooling Vest | High Collar Cooling Vest | Hoodie Cooling T-shirt | Cooling T-shirt with Detachable Hoodie | Full Body Cooling Garment

THERAPEUTIC THERMAL PADS

COMPCOOLER' s tubing-lined therapeutic cooling pads work best with stationary cooling systems. Cooling pads provide relief to patients that are bedridden or have Dysautonomia Syndrome. Our cooling pads are made with Modal fabric, a semi-synthetic material that is considered a luxurious textile thanks to its durability, flexibility and soft feel. They are available in sizes that fit single, full and king beds.



Liquid Thermal Pad

LIQUID THERMAL CUSHION

COMPCOOLER's tubing-lined cooling cushions are compatible with either ice-based or chiller-based stationary systems. User can secure the cushion on the seat (ie: motorcycle, vehicle seat, or wheelchair) using attached straps. Compcooler's cooling pads are made with mesh liner, non-slip mat, an internal 3D fabric that is comfortable to use.

Motorcyclist Thermal Cushion

Seat Thermal Cushion

Driver Thermal Cushion

BLADDERS, BATTERIES AND ACCESSORIES

1.5L Cubic Bladder

3.0L Bladder

5.0L Bladder

2.5L Bladder
Dual Chamber

4.0L Bladder
Dual Chamber

Flow Control Pump

Controller

Power Cord

7.4V 2.2Ah

7.4V 5.0Ah

12V 20Ah

Extension Hose

Power Adapter
12V to 7.4V

Power Adapter
110-220V to 7.4V

Power Adapter
110-220V to 12V

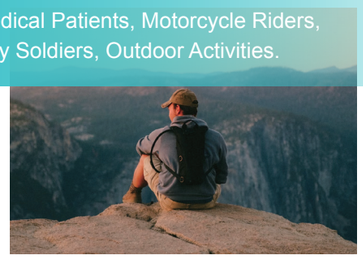
Power Adapter
110-220V to 24V

COMPANY INTRODUCTION

COMPCOOLER has established a pedigree for developing MIL spec products including Personal Thermal Systems and Micro Chiller Units for over 15 years. The same cooling and heating benefits developed for military and aerospace applications has been adapted for a myriad of civilian applications. COMPCOOLER's goal is to provide innovative systems made to the highest quality standards at affordable prices and with exceptional customer service.
COMPCOOLER is a ISO9001 registered facility with certifications including CE, FCC, UL, PSE, RoHS, FDA for both components and systems.

APPLICATIONS

Industrial Workers, Medical Patients, Motorcycle Riders, Vehicle Drivers, Military Soldiers, Outdoor Activities.



QUALITY CONTROL AND PRODUCTION STANDARD

Cooling Unit Standard:

MIL-STD-810G, MIL-STD-1275D,

GJB150, SAE-AMS-XXX

ANSI/ASHRAE 15b-2006

Facility Quality Control

Quality System